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Air Quality Climatology Using CHIMERE and EMEP

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CHIMERE and EMEP are three-dimensional chemical transport model. An air quality climatology (2001 - 2007) is computed over Europe using CHIMERE and EMEP on a regular grid of 0.5°x0.5°, with a focus on O3, NO2, PM10, and PM2.5.

Firstly, climatology is computed based only on model simulations. Monthly and annual means of pollutants concentrations are extracted to illustrate the inter-annual and seasonal variability of air quality.

The second stage concerns the evaluation of the climatology using ground based stations from the Airbase database. More than 360 rural background stations were available and used for the calculation of classical skill scores for O3, NO2 and PM10.

The last phase is focused on ozone. It is an update of the climatology including measurements from ground based stations. Measurements are used to compute a corrective field, which is then combined with the raw forecast. Discrepancies and benefits between the climatologies from the first and third phases are discussed.